12 July 1955

MEMORANDUM FOR THE RECORD

SUBJECT: Research and Development During FY 1956

In considering possible courses for further development in connection with the vehicle, the incorporation of drone control equipment and a long-range guidance system are worth serious investigation. Present programming looks toward continued utilization of the present vehicle through mid-1957. At that time it is estimated Soviet capabilities to detect and intercept will probably have improved over present capabilities. The capture of a pilot during the operational period could, of course, have very serious political consequences and thus the obvious step in development is to design a new vehicle capable of operating at higher altitudes or at speeds sufficient to avoid interception. The basic feasibility of such a new vehicle appears to be assured but whether all of the required development of both engine and vehicle can be accomplished by mid-1957 remains questionable.

As an interim measure, it is proposed to study drone and guidance equipment for the present vehicle which would, in effect, make the vehicle a long-range guided missile. The entire system has not been completely thought out. However, the basic elements appear to be electronic takeoff and landing equipment controllable by radio signal from both a ground station and a mother plane, a flight programmer, and a guidance system probably of the type which uses the sun or a star for navigation purposes. In connection with such a system, a transponder type navigation system such as presently contemplated for operational use would be desirable for the purpose of ascertaining the position of the vehicle at any given time during its flight. Furthermore, adequate precautions would have to be built into this system to prevent assumption of control by other parties.

Drone equipment for takeoff and landing control by radio signal now exists and probably could be miniaturized to a greater extent. Several guidance systems also exist and are characterized by reasonable accuracies for the use contemplated here. In other words, if a star-seeking guidance system developed for missiles has a CEP of, say, 15 or 20 miles for a 3,000 mile range, this accuracy might be intolerable for a weapon but not for a photo reconnaissance mission.

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If such a system can be developed and flown with reasonable reliability, the whole pilot uncertainty can be removed from the present system. Pilot recruitment and training, the political implications of capture, moisture introduced into the equipment bay by pilot breathing, the limitations on mission frequency imposed by pilot capabilities are some of the problems which can be avoided. In view of the existence of the basic components, the cost of development should be quite reasonable and would probably not exceed [redacted] 25X1

25X1 [redacted]

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